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THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET
BOSTON, MASSACHUSETTS 02108

COMPLETE REGULATION PACKAGE

FOR

MUNICIPAL WASTE COMBUSTOR REGULATION

DATE: April 1998

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INTRODUCTION

On December 19, 1995 the Environmental Protection Agency (EPA) adopted Emission Guidelines for Municipal Waste Combustors (MWCs). This was in direct response to the requirements of Sections 111(d) and 129 of the Federal Clean Air Act Amendments (CAAA) of 1990. States which have large municipal waste combustors are required to adopt a state plan to implement these emission guidelines for any affected facility within the state.

There are nine MWCs operating in the Commonwealth. Seven of these are classified as large MWCs under the regulatory scheme contained within the federal guideline and will be regulated under the State Plan being proposed herein. The other two are classified as small MWCs and will be regulated at a later time.¹

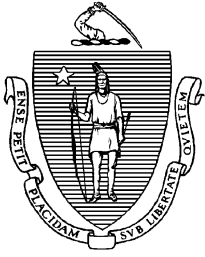
This public hearing package contains the Commonwealth's draft State Plan for MWCs in response to the CAAA requirements along with a Background Document, a proposed amendment to the Air Pollution Control Regulations and a proposed amendment to the Fees Regulation. The package is divided into four sections.

1. The Background Document - This contains background information for the adoption of the state plan, as well as a discussion of the issues involved.
2. The State Plan - The EPA has detailed the information required to be in the State Plan at 40 CFR 60 Subpart B. The requirements of the State Plan are as follows:
 - a. A demonstration of the state's legal authority to carry out the Section 111(d) and 129 State Plan as submitted;
 - b. Identification of enforceable state mechanisms selected by the state for implementing the Emission Guidelines;
 - c. An inventory of municipal waste combustor plants/units in the state affected by the Emission Guidelines, including municipal waste combustor units that have ceased operation and are not partially or totally dismantled;
 - d. An inventory of emission from municipal waste combustor units in the state;
 - e. Emission limitation from municipal waste combustor units that are at least as protective as those in the Emission Guidelines;
 - f. Testing, monitoring, recordkeeping, and reporting requirements;
 - g. A record of public hearings on the state plan;
 - h. Compliance schedules for municipal waste combustor units; and

¹ It should be noted that emissions to the ambient air from these facilities are all currently regulated by permits issued by the Department. The regulation the Department is proposing will require further emission reductions by these facilities.

- i. Provisions for annual state progress reports to EPA on implementation of the state plan.
- 3. The proposed regulation - 310 CMR 7.08(2), Municipal Waste Combustors - This includes the emission limitations, operating requirements testing, monitoring, recordkeeping and reporting requirements which will be adopted into the Air Pollution Control Regulations.
- 4. The proposed new permit category - Under the Department's Timely Action and Fees Regulation, a new permit category to cover the review of Emission Control Plans for Municipal Waste Combustors is being proposed.

The Department intends to submit the state plan (which includes the air pollution control regulation) to EPA after the public hearings.



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BACKGROUND DOCUMENT

ADOPTION OF A STATE PLAN TO REGULATE
EMISSIONS FROM MUNICIPAL WASTE COMBUSTORS

AMENDMENTS TO THE
TIMELY ACTION AND FEES REGULATIONS

STATUTORY AUTHORITY
M.G.L. c. 111, Sections 142A through 142M and 150A
M.G.L. c. 21A, Section 18

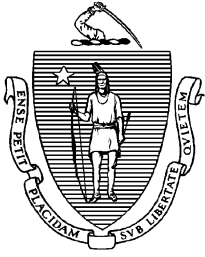
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A. SUMMARY

The Massachusetts Department of Environmental Protection (DEP) proposes to adopt a state plan to fulfill the mandate detailed in sections 111(d) and 129 of the federal Clean Air Act Amendment (CAAA) of 1990.

On December 19, 1995 the Environmental Protection Agency (EPA) adopted New Source Performance Standards (NSPS) for New Municipal Waste Combustors (40 CFR 60 Subpart Eb) and Emission Guidelines (EG) for Existing Municipal Waste Combustors (40 CFR 60 Subpart Cb). The Emission Guidelines establish emission levels for the following pollutants; dioxin/furans, cadmium, lead, mercury, particulate matter, hydrogen chloride, sulfur dioxide, nitrogen oxides and fugitive ash. The guidelines also establish requirements for operating practices (carbon monoxide, load, and flue gas temperature), opacity, as well as operator training, monitoring, testing, recordkeeping, reporting and schedules for compliance. The NSPS and the EG categorized municipal waste combustors into two groups; large and small depending on the aggregate plant capacity of the plant.

On December 6, 1996, the United States Court of Appeals for the District of Columbia in *Davis County Solid Waste Management and Energy Recovery Special Service District v. US EPA* issued orders to vacate the NSPS and the EG in its entirety. The Court held that EPA exceeded its statutory authority under the CAAA because EPA based the combustion capacity of a facility on the aggregate municipal solid waste combustion capacity of the plant, rather than on the municipal solid waste combustion capacity of the individual units at the plant. Consequently, some facilities with multiple small units were grouped within the same category as facilities with large units, thus subjecting these small units to more stringent emission limits.

The EPA petitioned the court for a rehearing, requesting that the court vacate the NSPS and EG only as they apply to small municipal waste combustor units. The court on March 21, 1997 agreed and allowed the NSPS and EG as they apply to large municipal waste combustor units to remain intact.

The standards contained in the NSPS and EG are applicable to large municipal waste combustor plants, units combusting more than 250 tons/day, remain in effect. However, emission limits for four of the pollutants in the EG changed because of the recalculation of emissions for each designated pollutant based upon unit capacity rather than on plant capacity. Hydrogen chloride has changed from 31 ppmv to 29 ppmv, sulfur dioxide has changed from 31 ppmv to 29 ppmv, lead has changed from

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0.49 mg/dscm to 0.44 mg/dscm and nitrogen oxides have changed according to combustor type. In the August 25, 1997 Federal Register, EPA adjusted these emission limits in a direct final rule for large municipal waste combustors and plans on addressing small municipal waste combustors in a separate rulemaking at a later time.

DEP is proposing to regulate large municipal waste combustor plants (units combusting more than 250 tons/day) and defer small units (units combusting less than or equal to 250 tons/day until promulgation of federal standards regarding small municipal waste combustor plants. Large municipal waste combustor plants combust 93.8% of the municipal solid waste stream in the Commonwealth that is combusted.

DEP proposes to incorporate the EG for large municipal waste combustors into a regulation under 310 CMR 7.08(2) "Municipal Waste Combustors". The DEP is also proposing to amend its Timely Action and Fees Regulations, 310 CMR 4.00 by adding a new fee for the review of Emission Control Plans from facilities that must comply with the regulation.

The Department is proposing a significantly more stringent limit on mercury emissions than is contained in the EG: 0.028 mg/dscm instead of 0.080 mg/dscm.

B. REGULATORY HISTORY AND PURPOSE

Under the Clean Air Act Amendment of 1990 (CAAA), the United States Environmental Protection Agency (EPA) was required to develop regulations to control air pollution emissions from municipal waste combustor units. Congress specifically added section 129 to the Clean Air Act to address public concerns about municipal waste combustors and other solid waste combustion units. Section 111 of the CAAA requires EPA to develop performance standards and guidelines for new and existing stationary sources. The emissions from new municipal waste combustor units are addressed in New Source Performance Standards (NSPS), and emissions from existing municipal waste combustor units are addressed in the Emission Guideline (EG). Under section 129 of the Clean Air Act, these standards and guidelines must be based on Maximum Achievable Control Technology (MACT). MACT standards require the maximum degree of reduction in emissions, taking into consideration cost and energy requirements.

The Emission Guidelines affect municipal waste combustors for which construction commenced on or before September 20, 1994. The Emission Guidelines for municipal waste combustor units differ from other Emission Guidelines adopted in the past because the Emission Guidelines address both Section 111(d) (requirement to submit State Plans to control emissions from existing sources for which EPA establishes standards) and Section 129 (solid waste combustion requirements). Section 129 overrides some aspects of Section 111(d). Specifically, Section 129 requires State Plans to be at least as protective as the Emission Guidelines; whereas Section 111(d) allows states flexibility to consider the remaining useful life of the source and other factors.

Independent of the Clean Air Act requirements, the Commonwealth of Massachusetts is concerned about emissions from municipal waste combustors. The recently released Mercury Report-June '96, "Mercury in Massachusetts: An Evaluation of Sources, Emissions, Impacts and Controls" states that municipal waste combustors are the major mercury emission source category in Massachusetts. Emissions from municipal waste combustors also contain dioxin/furans, acid gases, NO_x and other metals. These pollutants can have adverse effects on both public health and welfare. This regulation will significantly reduce municipal waste combustor emissions.

C. DESCRIPTION OF THE PROPOSED MWC REGULATION

Pollutants and Parameters To Be Regulated:

Metals (Mercury, Lead, Cadmium)
Particulate Matter
Opacity (Visible Emissions)
Organics (Dioxins/furans)
Acid Gases (Sulfur Dioxide, Hydrogen Chloride)
Nitrogen Oxides
Fugitive Ash, and
Operating Practices (Carbon Monoxide, Flue Gas Temperature, Load Level).

Reduction Of Hazardous And Criteria Air Pollutants From A Major Source

The recently released Mercury Report-June '96, "Mercury in Massachusetts: An Evaluation of Sources, Emissions, Impacts and Controls" states that municipal waste combustors are the major mercury emission source category in Massachusetts. According to the Mercury Report, 37 waterbodies statewide have been issued fish advisories as well as a statewide advisory warning pregnant women to avoid eating freshwater fish caught in the Commonwealth. DEP has one significant change in the emission limits proposed from the limits contained in the Emission Guidelines. The limit on mercury has been reduced from 0.080 mg/dscm to 0.028 mg/dscm. As a consequence of this regulation, mercury emissions will be reduced up to 85 percent from the current level of approximately 5,860 pounds. These reductions will contribute to reducing the amount of mercury entering waterbodies for which fish advisories have been placed by the Department of Public Health for mercury contamination.

The emission of dioxin/furans, another toxic pollutant, will be reduced by more than 50 percent. Acid gases such as hydrogen chloride and sulfur dioxide will also be reduced along with nitrogen oxides which contribute to ground level ozone.

Based on the previously mentioned Court ruling, EPA redefined a Small Municipal Waste Combustor as a municipal waste combustor with a unit capacity to combust greater than 39 tons/day but less than or equal to 250 tons/day and a Large Municipal Waste Combustor is now classified as a municipal waste combustor with a unit capacity to combust greater than 250 tons/day of municipal solid waste. Because the emission limits specified in the NSPS and the EG were determined using the aggregate capacity definition, EPA has recalculated emission limits based on unit capacity. For large municipal waste combustor units the emission limits remain the same except for hydrogen chloride, sulfur dioxide, lead, and nitrogen oxides. The emission limits for these pollutants changed from 31 ppm to 29 ppm for hydrogen chloride and sulfur dioxides, respectively. Lead changed from 0.49 mg/dscm to 0.44 mg/dscm and nitrogen oxides changed depending on the combustor type. The Commonwealth in its proposed regulation will use the latest definition of a Small and Large Municipal Waste Combustor.

Since EPA has decided to address small municipal waste combustor units in a separate rulemaking, DEP has decided not to propose regulations for small municipal waste combustor plants (municipal waste combustor unit capacity greater than 39 tons/day but equal to or less than 250 tons/day) at this time. New regulations for small municipal waste combustor plants will be proposed after EPA promulgates federal standards for these units. Small municipal waste combustor plants will continue to be regulated by the Department under existing 310 CMR 7.00 regulations.

Performance Testing

The proposed regulation incorporates by reference 40 CFR 60.58b, Compliance and Performance Testing. The provisions of this section require annual compliance testing of municipal waste combustor units for metals, particulate matter, opacity, fugitive emissions, hydrogen chloride and operating practices (flue gas temperature and load level). Compliance with emission limits for sulfur dioxide, nitrogen oxides and carbon monoxide will be determined by Continuous Emissions Monitoring Systems (CEMS).

Compliance testing of organics (dioxin/furans) will be determined on a 9-month basis as is currently required by Massachusetts General Law, Chapter 21H, Section 5. DEP proposes to incorporate the alternative schedule outlined in the Emission Guidelines of alternating stack testing of different combustor units every 9-months for those municipal waste combustor plants whose emissions of dioxin/furans is less than or equal to 15 ng/dscm, total mass corrected to 7% oxygen. Facilities meeting this emission limit shall be able to stack test their units on an alternate basis, stack testing only one unit every nine months rather than stack testing all of their units every nine months.

Schedule For Compliance

There are nine municipal waste combustor plants in the Commonwealth of Massachusetts. Seven will be subject to this regulation. Facilities located in Fall River, Haverhill, Lawrence, Millbury, North Andover, Rochester and Saugus contain large municipal waste combustors. Facilities located in Agawam and Pittsfield contain small municipal waste combustors and will be subject to additional regulations after EPA adopts standards for them and the Department incorporates them in its regulations. The compliance timelines for the seven existing facilities are as follows:

1. Large municipal waste combustors shall be in full compliance with all the applicable requirements of 310 CMR 7.08(2) within one year from the promulgation date of the regulation or cease operations. An Emission Control Plan containing at a minimum, the control efficiency, specifications, standard operating and maintenance procedures and an evaluation of the feasibility of incorporating a front-end separation plan shall be submitted to DEP prior to any facility retrofit.

2. If a municipal waste combustor plant cannot comply within one year of the promulgation date of the regulation, a facility may be allowed additional time provided that it adheres to a schedule submitted as part of the Emission Control Plan with the following enforceable increments of progress towards compliance.

- a. Included in the ECP shall be dates for the following:

- i. Awarding contracts for control systems or process modifications or orders for purchase of components, no later than one year following the promulgation date of the regulation.

- ii. Initiating on-site construction or installation of the air pollution control device(s) or process changes, no later than eighteen months following the promulgation date of the regulation.

- iii. Completing on-site construction or installation of control equipment or process changes, no later than thirty months following the promulgation date of the regulation.

iv. Initial performance test(s) of the air pollution control device(s), no later than thirty three months following the promulgation date of the regulation.

In no case shall a compliance schedule extend beyond December 19, 2000.

b. Municipal waste combustor unit(s) located at large municipal waste combustor plants which commenced construction, modification, or reconstruction after June 26, 1987 shall comply with emission limits for mercury and dioxin/furans by one year following the approval by EPA of the State Plan or one year following the promulgation of 40 CFR, Subpart FFF of Part 62, whichever is earlier. (40 CFR, Subpart FFF of Part 62 will be the federal plan for existing units in states which have not submitted State Plans to the EPA.)

3. If a municipal waste combustor unit located within a large municipal waste combustor plant is to permanently cease operations, it must do so within one year. If permanent ceasing of operations is not possible within one year, then to comply with 310 CMR 7.08(2) in its entirety, the owner or operator of a municipal waste combustor plant shall provide:

a. Justification to the Department six months prior to the compliance date why operation must extend beyond one year following the promulgation date of this regulation, and

b. The owner or operator of the facility shall enter into an Administrative Consent Order with the Department which contains enforceable milestones and commitments towards closure as expeditiously as possible. In no case shall operations extend 2 years beyond the promulgation date of this regulation.

Submission of a Materials Separation Feasibility Plan

A section has been added to the proposed regulation requiring all municipal waste combustor facilities to submit to the Department a study outlining the feasibility of implementing a front-end materials separation plan.

D. FEES REGULATION

As a consequence of the municipal waste combustor regulation, a revision is required to the fees regulation. Since the municipal waste combustor facilities will have to submit an Emissions Control Plan to the Department before any retrofits occur, a one time fee of \$6000 dollars will be charged to the facilities to review and approve their plans.

E. AIR QUALITY IMPACTS

The primary impacts of this rule on the state's overall environment and air quality are significant. The pollutants regulated under the Emission Guidelines and which will be regulated under the proposed state regulation are a combination of criteria pollutants and hazardous air pollutants. Direct air quality improvements will be realized in areas such as mercury, where up to an 85% reduction in emissions is expected. These reductions will reduce the amount of mercury entering waterbodies for which fish advisories have been placed by the Department of Public Health for mercury contamination. The emissions of dioxin/furans, a toxic air pollutant will be substantially reduced, as well as nitrogen oxides, a precursor in the formation of ozone.

F. IMPACT ON SMALL BUSINESS

The proposed regulation will not adversely impact small businesses. There are seven municipal waste combustors in the Commonwealth which will be subject to this regulation. None of the seven municipal waste combustor facilities is classified as a small business.

G. IMPACTS ON CITIES AND TOWNS

Based on service agreements between municipal waste combustor plants and cities and towns, increased cost to municipal waste combustor plants due to the proposed regulation will be passed on to municipalities. Based upon the economic impact analysis done by the EPA, DEP estimates that the cost to municipal waste combustor plants for implementing the proposed federal regulation will range from \$0.54 to \$22.59 per ton of waste combusted, with the exception of the Fall River incinerator, which could cost anywhere from \$22.61 to \$278.81 per ton to retrofit. (See Tables I and II). By comparison, the added cost of the more enhanced state mercury standard, discussed below, will add another \$0.10 to \$1.03 per ton of waste combusted (about 0.3% to 2.7% of the total retrofit cost).

These estimates include both capital cost and annual operating costs. Actual costs will be associated with the level of control which currently exist at the facility. EPA's March 1994 document titled, "Economic Impact Analysis for Proposed Emission Standards and Guidelines for Municipal Waste Combustors" provides further details on this subject. To obtain a copy of this document visit the EPA's website at: www.epa.gov, click on publications, then on National Publication Catalog and enter "Municipal Waste Combustors". A copy is also available for review by appointment at DEP's Boston Office.

Cost Differential Between Federal Mercury Standard and Proposed Massachusetts Standard

The more stringent proposed state mercury standard (28 ug/dscm versus 80 ug/dscm) will add between \$329,000 - \$2,730,700 in operating costs to the total retrofit costs for all seven waste combustors of \$90 - \$100 million needed to comply with the federal MWC rule. This represents an increase of 0.3% - 2.7% to the total retrofit cost. It is estimated that this additional operating cost will add \$0.10 - \$1.03/ton to the increased tipping fees municipalities will have to pay to facilities for compliance with the federal MWC rule. For example, at NESWC, it is estimated that the federal rule will result in higher tipping fees of \$3.82 - \$22.59/ton, to which an additional \$0.10 - \$1.03/ton will be added as a result of the more stringent state rule. Following is an explanation of the derivation of this differential cost.

The estimated cost of a carbon injection system for mercury control will be between \$1.00 - \$5.59/ton of MSW according to EPA's cost analysis which accompanied the rule. This cost estimate includes the cost for installing and operating an activated carbon injection system. DEP assumes that all facilities will choose to install carbon injection systems, not only to meet the federal mercury standard, but also to control dioxins and other organics that are regulated by the federal rule. Therefore, the difference in cost between meeting the federal rule and the more stringent proposed state rule is solely a function of increased operational costs. Increased operational costs result from the need to inject additional carbon into the control system to capture more mercury.

To estimate the differential it is possible to compare EPA's estimates of carbon throughput necessary to meet the Federal standard with the actual carbon throughput obtained from the operating history of

New Jersey facilities which have been meeting their more stringent standard of 28 ug/dscm. The EPA background document estimated that a carbon feed rate of 0.17 - 1.1 lb/ton of waste combusted was required to meet the Federal standard. At a cost of \$1.00/lb for the carbon, the annual operating cost to meet the Federal standard ranges from approximately \$83,767 - \$542,000 for a typical facility burning 1500 tons per day of waste. Based on current operating history, New Jersey has reported that their facilities are using 1.0 - 1.2 lb. of carbon/ton of waste burned to meet their more stringent standard. Based upon the above feed rates, the differential cost of the more stringent Massachusetts standard therefore is estimated to range from \$49,300 - \$507,500 per year for a typical facility burning 1500 tons per day of waste, or approximately \$0.10 - \$1.03 per ton of waste burned in addition to the costs for implementing the federal rule that are included in Table II.

H. AGRICULTURAL IMPACTS

Pursuant to the intent of Massachusetts General Laws, Chapter 30A, Section 18, state agencies should evaluate the impact of proposed programs on agriculture within the Commonwealth. The Department has determined that the proposed program will have no adverse effect on agricultural facilities. The impacts to agriculture will be beneficial, as the regulation will help Massachusetts to attain National Ambient Air Quality Standards for ozone and other harmful pollutants, thus lowering crop damage attributable to pollution.

I. MASSACHUSETTS ENVIRONMENTAL POLICY ACT (MEPA)

Pursuant to 301 CMR 11.27 (Massachusetts Environmental Policy Act Regulations) this action (proposed 310 CMR 7.08(2)) will not lessen the stringency of any existing applicable regulation or standard to municipal waste combustor plants, and therefore, does not require the filing of an Environmental Notification Form (ENF).

J. SOURCE REDUCTION/MATERIALS SEPARATION

The waste management hierarchy included in the Solid Waste Master Plan (since 1990) is to direct waste management planning to:

- o Reduce both the volume and toxicity of all types of waste
- o Divert as much waste as possible from the waste stream by promoting reuse and recycling of appropriate materials
- o Dispose of unrecoverable solid waste in an environmentally sound manner.

The MWC rule affects the last, or disposal, step in this hierarchy, and will result in MWCs that are more environmentally sound. The rule establishes an emission standard and a performance standard for mercury which can be met through the installation of new air pollution control equipment. In addition, the Department is also proposing as a part of this rule a planning requirement that will address the first two steps of the hierarchy outlined above - reducing the toxicity of the waste and diverting materials to recycling. While the performance standard for emissions from these facilities can be met through the retrofitting of facilities with better air pollution control equipment, separation of wastes containing mercury or other contaminants from the waste stream can divert toxic materials prior to disposal at MWCs.

**TABLE 1. AIR POLLUTION CONTROL RETROFIT COST TO
MUNICIPAL WASTE COMBUSTORS IN THE COMMONWEALTH**

Facility Air Pollution ^(a)	Plant Capacity tons/day Control Equipment	Cost To Control (x10 ⁶ dollars)	Current Air Pollution Control Equipment	Projected
Fall River	620 Spray Dryer and Fabric Filter	Acid Gases, Pb, Cd 15 - 20 and Particulate Matter	Plate Scrubber/ Ionizing Wet Scrubber	
	Carbon Injection	Mercury and 0.9 - 1.0 Organics (Dioxin/furans)	None	
Haverhill- OGDEN MARTIN	1650 Fabric Filter	Acid Gases, Pb, Cd 13 and Particulate Matter	Sprayer Dryer/ Electrostatic Precipitator	
	Carbon Injection	Mercury and Organics (Dioxin/furans) 0.9 - 1.0	None	
	DeNOx	NOx 0.9 - 1.0	None	
Lawrence- OGDEN MARTIN	710 Spray Dryer and Fabric Filter	Acid Gases, Pb, Cd 13 and Particulate Matter	Dry Lime Injection/ Electrostatic Precipitator	
	Carbon Injection	Mercury and 0.9 - 1.0 Organics (Dioxin/furans)	None	
	DeNOx	NOx 0.9 - 1.0	None	
Saugus-RESCO None	1500	Acid Gases, Pb, Cd 0.0 and Particulate Matter	Sprayer Dryer/ Fabric Filter	
	Carbon Injection	Mercury and 0.9 - 1.0 Organics (Dioxin/furans) NOx	None None	

		Carbon Injection	Mercury and 0.9 - 1.0 Organics (Dioxin/furans)	None
		DeNOx	NOx 0.9 - 1.0	None
<hr/>				
SEMASS	2700		Acid Gases, Pb, Cd 0.0 and Particulate Matter	Spray Dryer/ Electrostatic Precipitator
	None			
		Carbon Injection	Mercury and 0.9 - 1.0 Organics (Dioxin/furans)	None
		DeNOx	NOx 0.9 - 1.0	None ^(b)
<hr/>				
Millbury- Wheelabrator	1500		Acid Gases, Pb, Cd 0.0 and Particulate Matter	Spray Dryer/ Electrostatic Precipitator
	None			
		Carbon Injection	Mercury and 0.9 - 1.0 Organics (Dioxin/furans)	None
		DeNOx	NOx 0.9 - 1.0	None
<hr/>				

(a) These are projected Air Pollution Controls (APCs) based on current facility stack test data and on current APC technologies.

(b) SEMASS has a DeNOx unit on their new unit only, will need to address the other two.

TABLE 2.

TABLE II. Projected Added Control Cost For Municipal Waste Combustors as a Percentage of Current Tipping Fee.							
Due to Federal MWC Rule							
Facility	Potential Control system approach	Range of capital cost (\$1000). (1)	Added \$/ton over 10 years (2)	Added \$/ton over 20 years (2)	Range of added cost to operate/ton (1, 2)	Range of total added cost \$/ton	% increase to current tipping cost
Ogden - Law.	GCP+SD/FF	33491 - 64115	13.02 - 25.00	6.51 - 12.50	16.94 - 18.72	23.45 - 43.72	
Ogden - Hav.	GCP+FF	11259 - 21987	2.00 - 3.92	1.00 - 1.96	2.26 - 4.67	3.26 - 8.59	
Ogden - Com.						9.61 - 19.63 (4)	20.30 - 41.40 (4)
Fall River	GCP+SD/ESP	4125 - 53245	12.90 - 166.40	6.45 - 83.20	16.16 - 112.41	22.61 - 278.81	
NESWC	GCP+SD/FF	9443 - 45625	2.22 - 10.74	1.11 - 5.37	2.71 - 11.85	3.82 - 22.59	4.13 - 24.42
Millbury	Carbon injection	750 - 1000	0.15 - 0.20	0.08 - 0.10	1.02 - 1.53	1.10 - 1.73	1.90 - 2.99
SEMASS	Carbon injection	750 - 1000	0.08 - 0.10	0.04 - 0.05	0.50 - 0.75	0.54 - 0.85	1.92 - 3.02
Saugus	Carbon injection	750 - 1000	0.17 - 0.22	0.09 - 0.11	1.11 - 1.67	1.20 - 1.89	2.44 - 3.84
NOTES:							
1. Based on range of costs as presented in US EPA, Table 5-1, MWC II/III EG: Model Plant Capital and Annual Operating Costs of Acid Gas, Particulate Matter, and Metals Control (1990\$ x 1000)							
2. Added cost per ton based on the annual throughput of each facility reported to DEP.							
3. For assumptions and methodology used for calculating economic impacts, see Table 5-9 Assumptions and Conventions. US EPA.							
4. Combined weighted added control cost for both Ogden-Lawrence and Ogden-Haverhill.							

Summary Sheet

ESTIMATED AVERAGE COST PER TON OF RETROFITS FOR MUNICIPALITIES						
				Range of	Low Avg.	High Avg.
	No. Munis	Current Avg.	Added Cost/ton	Tip Fee	Tip Fee	Tip Fee
Facility	w/ Long-term	Tip Fee	from Fed. Rule	Fed. Rule	Fed. Rule	Fed. Rule
	Contracts					
Ogden (Law. + Hav.) (17	\$ 47.43	\$9.61 - 19.63	\$ 53.76	\$ 67.06	
Fall River	1	\$ -	\$22.61 - 278.81	\$ 22.61	\$ 278.81	
NESWC	23	\$ 92.50	\$3.82 - 22.59	\$ 96.77	\$ 115.54	
Millbury	36	\$ 57.83	\$1.10 - 1.73	\$ 58.93	\$ 59.56	
SEMASS	46	\$ 28.12	\$0.54 - 0.85	\$ 28.66	\$ 28.97	
Saugus	8	\$ 49.21	\$1.20 - 1.89	\$ 50.41	\$ 51.10	
TOTALS	131					
NOTES: 1. The range of added cost/ton for the Ogden facilities are based upon a weighted average of the costs of the Lawrence facility and the Haverhill facility. 2. Additional cost of more stringent state rule would add \$0.10 - \$1.03/per ton to the estimated tipping fees in this chart. 3. The Renewable Energy Trust Fund is likely to reduce increases in tipping fees by >50% (Fall River will not qualify).						

The Department is pursuing a three-part strategy to divert mercury and other toxic materials from the waste stream that combines materials separation with easier and cheaper collection programs. The strategy includes:

- o Materials separation of mercury-containing materials prior to disposal;
- o Implementation of the Universal Waste Rule; and
- o Establishment of a state contract for the collection of fluorescent lamps and other materials.

Materials Separation Feasibility Plan

Materials separation is being promoted by the Department in two ways: requiring that MWCs include an evaluation of the feasibility of incorporating materials separation of certain components of the waste stream as a part of this proposed regulation; and the funding of Household Hazardous Product (HHP) permanent collection centers through the Clean Environment Fund.

This rule includes a section requiring that MWCs include an evaluation of the feasibility of incorporating materials separation prior to disposal of wastes at the facility. The plan will include a feasibility study of options for the establishment of a front-end separation program to collect mercury containing waste materials before they are disposed at the facility, and an implementation schedule for those found feasible. Options to be investigated include establishment and/or funding of municipal battery and fluorescent bulb collection programs, including regional Household Hazardous Product (HHP) collection centers, and development of outreach programs with local electrical contractors and businesses resulting in a collection program for electrical switches. The Department will review the plan and work with the facility to ensure the implementation of cost-effective collection programs that will reduce the amount of mercury and other toxics entering the facility. Facilities may choose to establish a program in concert with their contract municipalities and with waste haulers serviced by the facility.

The materials separation study should, at minimum, examine the feasibility of establishing a program for collecting mercury bearing wastes but should also look at collection of the broader range of other household hazardous products (HHP) that are routinely disposed. Since heavy metals are not destroyed by the combustion process, a materials separation program will reduce facility emissions of heavy metals and reduce the concentration ending up in ash which must then be disposed in a landfill. As regional disposal facilities the MWCs are a logical focal point for such a study because each facility handles waste from numerous communities and may be more effective in developing solutions than each community by itself. At the same time, the Department is not mandating a materials separation program, nor specifying the options to be addressed. Below are examples of several possible options based upon pilot programs currently operating in Massachusetts.

The materials separation plan should include basic components similar to what is included in typical environmental evaluations such as MEPA. Plans should include:

- A no action alternative and options for achieving materials separation of toxic components of the waste stream.
- .. The feasibility of the alternatives, including cost and potential for reduction of toxics in air emissions and ash.
- .. A plan for meeting with key stakeholders during development of the plan.
- .. Implementation issues.
- .. Benefits to be achieved.

Currently many communities run one-day collection events for HHP. These events are costly, ranging from \$7,000 for a small community to \$53,000 for 3 one-day events in Cambridge, and generally are not very effective as they are only used by a very small percentage of the households in the community. In an effort to decrease collection costs and significantly increase participation and capture rates of HHP, EOEa and DEP promote more effective local permanent collection programs. Such programs collect priority materials including waste oil, antifreeze, NiCd batteries and paint. To further promote such collection centers, EOEa and DEP will pilot a regional collection center along with local permanent collection of priority materials by providing a grant of \$124,000 from the Clean Environmental Fund to NESWC. This grant will provide for the establishment of a permanent HHP collection center to be located in Lexington for use of all the NESWC communities. This regional model would be one option that facilities should address.

There are several other options a facility might consider:

allocate funding for the construction of local or regional HHP collection centers for collection of priority materials

- .. provide a site for development of a collection center
- .. provide funding for the annual operating costs of a collection center
- .. provide a coordinator to work with contract communities to assist them in applying for a DEP HHP collection center grant
- .. provide outreach programs for waste haulers and commercial accounts served by the facility regarding proper management of HHP
- .. allocate funding or assistance to municipalities to help them establish HHP collection programs in municipal buildings and school systems

Costs for the activities described may vary widely according to the level of involvement in the project, whether there are any capital or operating costs, and the length of time the project will run. To the extent that municipalities already fund one-day collection events, where a MWC coordinates a local or regional collection center that municipalities then use and for which they pay a portion of the operating costs, the cost per pound of HHP collected will decrease significantly and the participation rate will increase in comparison to a one-day collection event in that town.

While the requirement of a feasibility study for front-end separation has been added to this proposed municipal waste combustor air regulation, an alternative approach is to include this requirement in the solid waste regulation under 310 CMR 19.000. The Department encourages public comment on whether it should remain in the air regulation or if it would be more appropriate under the solid waste regulations.

Universal Waste Rule

In October the Department finalized its Universal Waste Rule (UWR) regulations, which will eliminate overly burdensome regulatory barriers for some types of consumer type wastes. These regulations will make it easier and more cost-effective to collect these wastes and ensure that they are properly managed and recycled, rather than disposed as solid wastes. The prime benefit of the UWR is that it will promote the removal of consumer type wastes from the municipal solid waste stream, thereby minimizing the environmental damage they may cause when burned at municipal waste combustors or landfilled. The management requirements of the UWR have been tailored to suit the risks posed by a specific waste stream. These streamlined management requirements are

associated primarily with the collection and consolidation stages of waste management. The activities conducted at waste disposal facilities to which these materials would go for processing or treatment continue to be managed under conventional RCRA requirements. The intent of the UWR is to foster private sector involvement in developing efficient systems of stewardship that will actually increase the amount of materials recycled and decrease the amount of materials discarded as solid waste, thereby enhancing environmental protection.

The rule will allow for simplified collection and transportation of certain pesticides, mercury-containing wastes, fluorescent lamps, and hazardous waste batteries. The rule will regulate these materials as hazardous waste at the point where they are collected and dismantled or processed, not at the point of generation.

The success of this approach can already be seen in a private company sited in Massachusetts to collection fluorescent lamps from all of New England, Global Recycling Technologies. This company has been in operation for approximately three years and is permitted in accordance with the new UWR. Global is now processing and recycling approximately 75,000 fluorescent lamps per day, removing 1.5 kilograms of mercury from the wastestream per day, or approximately 390 kilograms per year. Global hopes to increase its capacity to process lamps.

State Contract for Collection of Fluorescent Lamps and Other Materials

The Operational Services Division (OSD) has recently signed a state contract for the collection and transportation of mercury wastes. The state contract is designed to allow all agencies and cities and towns quick and easy access to recycling services for these materials without having to design complex specifications and vendor requirements. In this way, facilities will reduce their potential exposure to mercury as well as the unintended leaching of mercury into ground and surface waterways. The state contract also allows municipalities to contract, at a preferred rate, for collection, transportation and management of lamps they either generate themselves or collect through household hazardous product collection events. While the major focus of this contract is to remove mercury from the waste stream prior to disposal, it will also result in the removal of other materials containing lead, cadmium and other toxic materials from the waste stream, including:

- o computer equipment
- o mercury, lithium or silver oxide batteries
- o alkaline batteries without mercury
- o nickel cadmium batteries
- o nickel metal hydride batteries
- o crushed/broken fluorescent lamps
- o leaking ballasts
- o PCB transformers

K. PROGRAM IMPLEMENTATION

The EPA will require states that have municipal waste combustor plants larger than 250 tons/day unit capacity to submit a Section 111(d)/129 state plan. At a minimum, the state plan must include:

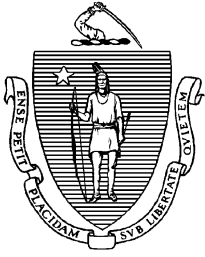
- a. A demonstration of the state's legal authority to carry out the Section 111(d)/129 state plan as submitted;

- b. Identification of enforceable state mechanisms selected by the state for implementing the Emission Guidelines;
- c. An inventory of municipal waste combustor plants/units in the state affected by the Emission Guidelines, including municipal waste combustor units that have ceased operation and are not partially or totally dismantled;
- d. An inventory of emissions from municipal waste combustor units in the state;
- e. Emission limitations from municipal waste combustor units that are at least as protective as those in the Emission Guidelines;
- f. Testing, monitoring, recordkeeping, and reporting requirements;
- g. A record of public hearings on the state plan; and
- h. Provisions for annual state progress reports to EPA on implementation of the state plan.
- i. Compliance schedules for each MWC unit.

The DEP expects to satisfy the requirements of sections 111(d) and 129 of the CAAA with this proposed state plan and will submit it to the EPA for approval after holding public hearings.

L. PUBLIC PARTICIPATION

As provided by state law, the Department gives notice and provides the opportunity to review the proposed state plan and regulation for implementing section 111(d) and 129 of the Clean Air Act, the background document and any technical information at least 21 days prior to proposing the regulation amendment at a public hearing. Since the proposed State Plan and regulation are to fulfill an EPA requirement, notice was issued 30 days before the public hearings. The hearings will be held in accordance with procedures of MGL Chapter 30A. A copy of the proposed state plan is available in the Department's Business Compliance Division at One Winter Street, Boston as well as each DEP regional service center, and is available for review by interested parties. In addition, the state plan is available on the World Wide Web at <http://www.magnet.state.ma.us/dep>.



ARGEO PAUL CELLUCCI
Governor

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TRUDY COXE
Secretary

DAVID B. STRUHS
Commissioner

COMMONWEALTH OF MASSACHUSETTS

111(d) STATE PLAN

FOR

LARGE MUNICIPAL WASTE COMBUSTOR UNITS

DATE: April 1998

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

DEP on the World Wide Web: <http://www.magnet.state.ma.us/dep>



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SUMMARY

This document is the public hearing draft of the Municipal Waste Combustor State Plan prepared by the Massachusetts Department of Environmental Protection (DEP) as required by Section 111(d) of the Clean Air Act.

INTRODUCTION

The Clean Air Act Amendments of 1990, Section 129, directs the Environmental Protection Agency (EPA) to develop regulations to control air pollutants from municipal waste combustor units. There are seven municipal waste combustor facilities in the Commonwealth of Massachusetts which are subject. These facilities are located in the communities of Fall River, Haverhill, Lawrence, Millbury, North Andover, Rochester, and Saugus. On December 19, 1995 the EPA promulgated New Source Performance Standards for new municipal waste combustor units and Emission Guidelines for existing municipal waste combustor units.

With the promulgation of the Emission Guidelines, Section 111(d) of the Clean Air Act requires the EPA to establish procedures for states to submit a State Plan for implementing the Emission Guidelines.

For states to obtain approval of their State Plan by the EPA, they must submit at a minimum the following:

- A. A demonstration of the state's legal authority to carry out Section 111(d)/129 state plan as submitted.
- B. Identification of enforceable state mechanisms selected by the state for implementing the Emission Guidelines.
- C. An inventory of municipal waste combustor plants and units in the state affected by the Emission Guidelines, including municipal waste combustor units that have ceased operation and are not partially or totally dismantled.
- D. An inventory of emissions from municipal waste combustor units in the state.
- E. Emission limitations from municipal waste combustor units that are as protective as those in the Emission Guidelines.
- F. Testing, monitoring, recordkeeping, and reporting requirements.
- G. A record of public hearings on the state plan.
- H. Provisions for annual state progress reports to EPA on implementation of the state plan.
- I. A compliance schedule extending no later than December 19, 2000.

- J. Post 1990 dioxin/furan data for all municipal waste combustor units requiring more than one year to comply with the emission limit requirements.

The Commonwealth will satisfy Sections 111(d) and 129 of the CAAA by the submission of this State Plan to the EPA for approval after holding public hearings.

The proposed regulation 310 CMR 7.08(2) "Municipal Waste Combustors", submitted with this State Plan will incorporate all emission limitations as outlined in the Emission Guidelines with the exception of mercury. The Commonwealth is adopting a more stringent emission limit on mercury than that which is outlined in the Emission Guidelines.

A. DEMONSTRATION OF THE STATE'S LEGAL AUTHORITY

Appendix A contains an analysis of the state's legal authority prepared by the Attorney General stating that the DEP has legal authority to carryout the requirements of Sections 111(d) and 129 of the Clean Air Act for municipal waste combustors.

B. IDENTIFICATION OF ENFORCEABLE STATE MECHANISMS

The DEP is adopting the Emission Guideline requirements into the Code of Massachusetts Regulation 310 CMR 7.00, et seq., Air Pollution Control Regulations. The draft regulation is incorporated as Section IV in this public hearing package and will be incorporated into the final State Plan upon promulgation.

C. INVENTORY OF MUNICIPAL WASTE COMBUSTOR PLANTS

There are nine operating municipal waste combustor plants in the Commonwealth of Massachusetts. Seven are large municipal waste combustors and will be subject to the new regulation. These facilities are located in Fall River, Haverhill, Lawrence, Millbury, North Andover, Rochester and Saugus. Table 1. lists the facility, number of units at each facility, capacity of each unit and the current air pollution control equipment at the facility.

Facilities located in Agawam and Pittsfield contain small municipal waste combustor units and will not be subject to this regulation at this time.

TABLE 1. MUNICIPAL WASTE COMBUSTOR PLANTS IN MA

NAME	# OF UNITS/ COMBUSTOR TYPE ⁽¹⁾	UNIT CAPACITY (tons/day)	AIR POLLUTION CONTROL EQUIPMENT
Fall River	Two Mass Burn Refractory (Permitted to use 1 unit)	310	Plate Scrubber/ Ionizing Wet Scrubber
Ogden Martin- Haverhill	Two Mass Burn Waterwall	825	Sprayer Dryer Absorber/ Electrostatic Precipitator
Ogden Martin- Lawrence	One Refuse-Derived Fuel	710	Dry Sorbent Injection/ Electrostatic Precipitator
NESWC- North Andover	Two Mass Burn Waterwall	750	Dry Sorbent Injection/ Electrostatic Precipitator
RESCO- Saugus	Two Mass Burn Waterwall	750	Spray Dryer Absorber/ Fabric Filter
SEMASS- Partnership Rochester	Three Refuse-Derived Fuel	900	Sprayer Dryer Absorber/ Fabric Filter/ SNCR on One Unit
Wheelabrator- Millbury	Two Mass Burn Waterwall	750	Spray Dryer Absorber/ Electrostatic Precipitator

⁽¹⁾ Massachusetts does not have any other combustor types (e.g. Mass burn rotary refractory, mass burn rotary waterwall, bubbling fluidized bed or any of the other combustor type units mentioned in the Federal Emission Guideline)

D. EMISSIONS INVENTORY OF ALL MWC UNITS IN MASSACHUSETTS

PLANT : FALL RIVER

POLLUTANT ⁽¹⁾ :	UNIT 1 : Aug-96	UNIT 2 : CLOSED
PM	148.49 mg/dscm	
Dioxin/Furan	62.60 ng/dscm	
Hg	632 ug/dscm	
Pb	8.69 mg/dscm	
Cd	0.28 mg/dscm	
HCl	3.74 ppm	
SO ₂	27.7 ppm	
NO _x	165.4 ppm	
CO	12.9 ppm	

(1) All pollutant corrected to 7% O₂.

PLANT: OGDEN MARTIN-Haverhill

POLLUTANT ⁽¹⁾ :	UNIT 1 : Dec-96	UNIT 2 : Mar-96
PM	10.75 mg/dscm	20.82 mg/dscm
Dioxin/Furan	6.84 ng/dscm	7.49 ng/dscm
Hg	214 ug/dscm	179 ug/dscm
Pb	0.269 mg/dscm	0.475 mg/dscm
Cd	0.020 mg/dscm	0.031 mg/dscm
HCl	47.8 ppm	64.5 ppm
SO ₂	46.7 ppm	53.2 ppm
NO _x	296 ppm	293 ppm
CO	20.2 ppm	7.45 ppm

(1) All pollutant corrected to 7% O₂.

PLANT: OGDEN MARTIN-LAWRENCE

POLLUTANT ⁽¹⁾ :	UNIT 1 : Mar-96
PM	8.7 mg/dscm
Dioxin/Furan	5.01 ng/dscm
Hg	156 ug/dscm
Pb	0.0901 mg/dscm
Cd	0.0022 mg/dscm
HCl	167 ppm
SO ₂	69.2 ppm
NOx	271 ppm
CO	59.4 ppm

(1) All pollutant corrected to 7% O₂.

PLANT: NESWC-North Andover

POLLUTANT ⁽¹⁾ :	UNIT 1 : Nov-96	UNIT 2 : Feb-96
PM	0.4347 mg/dscm	1.49 mg/dscm
Dioxin/Furan	241 ng/dscm	76.87 ng/dscm
Hg	395 ug/dscm	337 ug/dscm
Pb	0.014 mg/dscm	0.010 mg/dscm
Cd	0.001 mg/dscm	0.001 mg/dscm
HCl	539 ppm	213 ppm
SO ₂	92.8 ppm	78.6 ppm
NOx	261 ppm	297 ppm
CO	6.8 ppm	8.0 ppm

(1) All pollutant corrected to 7% O₂.

PLANT: RESCO-SAUGUS

POLLUTANT ⁽¹⁾ :	UNIT 1 : Jan-96	UNIT 2 : April-95
PM	1.65 mg/dscm	0.8901 mg/dscm
Dioxin/Furans	12.1 ng/dscm	7.21 ng/dscm
Hg	85 ug/dscm	112 ug/dscm
Pb	0.016 mg/dscm	0.006 mg/dscm
Cd	0.002 mg/dscm	0.001 mg/dscm
HCl	26.4 ppm	30.2 ppm
SO ₂	21.6 ppm	18.6 ppm
NOx	239 ppm	242 ppm
CO	52.6 ppm	36.5 ppm

⁽¹⁾ Corrected to 7% O₂

PLANT: SEMASS Partnership-Rochester

POLLUTANT ⁽¹⁾ :	UNIT 1 : Jul-97	UNIT 2 : Nov-96	UNIT 3: Nov-96
PM	11.21 mg/dscm	4.12 mg/dscm	0.4576 mg/dscm
Dioxin/Furan	538 ng/dscm	56.5 ng/dscm	0.417 ng/dscm
Hg	64.0 ug/dscm	69.7 ug/dscm	3.67 ug/dscm
Pb	0.377 mg/dscm	0.540 mg/dscm	0.0064 mg/dscm
Cd	0.012 mg/dscm	0.015 mg/dscm	<0.110 ug/dscm
HCl	39.2 ppm	40.5 ppm	3.62 ppm
SO ₂	70.3 ppm	76.5 ppm	9.32 ppm
NOx	125.8 ppm	134 ppm	120 ppm
CO	175.3 ppm	113 ppm	63.6 ppm

⁽¹⁾ All pollutant corrected to 7% O₂.

PLANT: WHELLABRATOR-MILLBURY

POLLUTANT ⁽¹⁾ :	UNIT 1 : June-96	UNIT 2 : Sept-95
PM	12.9 mg/dscm	5.24 mg/dscm
Dioxin/Furan	65.5 ng/dscm	48.8 ng/dscm
Hg	187 ug/dscm	201 ug/dscm
Pb	0.108 mg/dscm	0.126 mg/dscm
Cd	0.0075 mg/dscm	0.0083 mg/dscm
HCl	49.1 ppm	57.3 ppm
SO ₂	21.5 ppm	47.2 ppm
NOx	257 ppm	286 ppm
CO	19.4 ppm	8.5 ppm

⁽¹⁾ All pollutants corrected to 7% O₂

E. EMISSION LIMITATIONS FOR MUNICIPAL WASTE COMBUSTOR UNITS THAT ARE SUBJECT TO STATE REGULATION 310 CMR 7.08(2).

Pollutant	Emission Limit ⁽¹⁾
Particulate Matter (PM)	27 mg/dscm
Dioxin/Furan w/ESP	60 ng/dscm (15 ng/dscm option)
Dioxin/Furan w/FF	30 ng/dscm (15 ng/dscm option)
Mercury	0.028 mg/dscm
Lead	0.440 mg/dscm
Cadmium	0.040 mg/dscm
Hydrogen Chloride	29 ppm
Sulfur Dioxide	29 ppm ⁽²⁾
Nitrogen Oxides (Mass Burn Waterwall) (Mass Burn Refractory)	205 ppm ⁽³⁾
Nitrogen Oxides (Refuse Derived Fuel)	250 ppm ⁽³⁾
Carbon Monoxide (Mass Burn Waterwall) (Mass Burn Refractory)	100 ppm ⁽⁴⁾
Carbon Monoxide (Refuse Derived Fuel)	200 ppm ⁽³⁾

⁽¹⁾ Corrected to 7% O₂, dry basis.

⁽³⁾ Based on a 24-hour arithmetic average

⁽²⁾ Based on a 24-hour geometric mean

⁽⁴⁾ Based on a 4-hour block average

F. TESTING, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Testing, monitoring, recordkeeping, and reporting requirements will be as specified in 310 CMR 7.08(2) (g), (h) and (l). (see Section IV of this package for attached regulation.)

G. A RECORD OF PUBLIC HEARINGS ON THE STATE PLAN

A record of the public hearings held, including a summary of comments received and responses will be included in the State Plan.

H. PROVISIONS FOR ANNUAL STATE PROGRESS REPORTS TO EPA ON IMPLEMENTATION OF THE STATE PLAN

DEP will report to the EPA on an annual basis the information as specified in 40 CFR, Part 51.323 to 51.326 and Part 60, Appendix D, namely; emissions data and information, progress in any plan enforcement, contingency plan actions and any plan revisions.

I. A COMPLIANCE SCHEDULE EXTENDING NO LATER THAN DECEMBER 19, 2000

A compliance schedule shall be as specified in 310 CMR 7.08(2)(j). The schedule as outlined in 310 CMR 7.08(2)(j) contains all five increments of progress as required by 40 CFR, Section 60.21(h) of Subpart B, for mwc units with retrofit schedules extending beyond one year. (see Section IV of this package for attached regulation.)

J. DIXON/FURANS TEST DATA SUBMISSION

The dioxin/furans concentrations listed for each unit at each facility under the Emission Inventory Section is post 1990 data. Concentrations were determined in accordance with Method 23 in 40 CFR, Part 60, Appendix A.

APPENDIX A

STATE'S LEGAL AUTHORITY TO IMPLEMENT STATE PLAN

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE PREVENTION
DIVISION OF AIR QUALITY CONTROL
ONE WINTER STREET
BOSTON, MASSACHUSETTS 02108

AMENDMENTS TO
310 CMR 7.00
REGULATIONS FOR THE
CONTROL OF AIR POLLUTION

IN THE

BERKSHIRE AIR POLLUTION CONTROL DISTRICT
PIONEER VALLEY AIR POLLUTION CONTROL DISTRICT
MERRIMACK VALLEY AIR POLLUTION CONTROL DISTRICT
METROPOLITAN BOSTON AIR POLLUTION CONTROL DISTRICT
CENTRAL MASSACHUSETTS AIR POLLUTION CONTROL DISTRICT
SOUTHEASTERN MASSACHUSETTS AIR POLLUTION CONTROL DISTRICT

STATUTORY AUTHORITY
M.G.L. c. 111, Sections 142B and 142D

MUNICIPAL WASTE COMBUSTORS

DATE: April 1998

MUNICIPAL WASTE COMBUSTOR REGULATION

Delete existing 310 CMR 7.08(2):

~~7.08(2) **Municipal Incinerators.**~~

~~(a) — No person shall cause, suffer, allow, or permit the construction or substantial reconstruction or alteration or thereafter the operation of a municipal incinerator for which the site location has not been approved by the Department in writing.~~

~~(b) — No person shall cause, suffer, allow or permit the operation of a municipal incinerator unless said incinerator has complied with the provisions of 310 CMR 7.02.~~

~~(c) — Tests for determining emission contaminant concentrations shall be conducted in a manner as specified in 310 CMR 7.02.~~

Add new 310 CMR 7.08(2):

7.08(2) MUNICIPAL WASTE COMBUSTORS

(a) Site Assignment. No person shall cause, suffer, allow, or permit the construction or substantial reconstruction or alteration or thereafter the operation of a municipal waste combustor plant on a site which has not received a site assignment in accordance with c.111, s.150A.

(b) Purpose. The purpose of 310 CMR 7.08(2) is to provide emission limitations and compliance schedules for the control of certain designated pollutants from Municipal Waste Combustors in accordance with sections 111(d) and 129 of the Clean Air Act.

(c) Definitions. The definitions found in 310 CMR 7.00 apply to 310 CMR 7.08(2). The following words and phrases shall have the following meanings as they appear in this section. Where a term is defined in the 310 CMR 7.00 definitions section and the definition also appears in this section, the definition in this section controls.

CALENDAR QUARTER means a consecutive 3-month period (nonoverlapping) beginning on January 1, April 1, July 1 and October 1.

CALENDAR YEAR means the period starting January 1 and ending on December 31.

CHIEF FACILITY OPERATOR means the person in direct charge and control of the operation of a municipal waste combustor and who is responsible for daily onsite supervision, technical direction, management, and overall performance of the facility.

CLEAN WOOD means untreated wood or untreated wood products including clean untreated lumber, tree stumps (whole or chipped), and tree limbs (whole or chipped). Clean wood does not include yard waste, or construction, renovation, and demolition wastes (including but not limited to railroad ties and telephone poles).

CONTINUOUS BURNING means the continuous, semicontinuous, or batch feeding of municipal solid waste for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production. The use of municipal solid waste solely to provide thermal protection of the grate or hearth during the startup period, when municipal solid waste is not being fed to the grate, is not considered to be continuous burning.

CONTINUOUS EMISSION MONITORING SYSTEM means a monitoring system for continuously measuring the emissions of a pollutant from a municipal waste combustor unit.

DIOXIN/FURANS means tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.

dscm means dry standard cubic meter.

FIRST CALENDAR HALF means the period starting on January 1 and ending on June 30 in any year.

FOUR-HOUR BLOCK AVERAGE or 4-HOUR BLOCK AVERAGE means the average of all hourly emission concentrations when the affected facility is operating and combusting municipal solid waste, measured over 4-hour periods of time from 12:00 midnight to 4 a.m., 4 a.m. to 8 a.m., 8 a.m. to 12:00 noon, 12:00 noon to 4 p.m., 4 p.m. to 8 p.m., and 8 p.m. to 12:00 midnight.

LARGE MUNICIPAL WASTE COMBUSTOR UNIT means a municipal waste combustor unit with a municipal waste combustor unit capacity greater than 250 tons/day of municipal solid waste.

MASS BURN REFRACTORY MUNICIPAL WASTE COMBUSTOR means a field-erected combustor that combusts municipal solid waste in a refractory wall furnace. Unless otherwise specified, this includes combustors with a cylindrical rotary refractory wall furnace.

MASS BURN WATERWALL MUNICIPAL WASTE COMBUSTOR means a field-erected combustor that combusts municipal solid waste in a waterwall furnace.

MAXIMUM DEMONSTRATED MUNICIPAL WASTE COMBUSTOR UNIT LOAD means the highest 4-hour arithmetic average municipal waste combustor unit load achieved during four consecutive hours during the most recent dioxin/furan stack test demonstrating compliance with the applicable limit for municipal waste combustor organics specified under 310 CMR 7.08(2)(f)(2), Table 2.

MAXIMUM DEMONSTRATED PARTICULATE MATTER CONTROL DEVICE TEMPERATURE means the highest 4-hour arithmetic average flue gas temperature measured at the particulate matter control device inlet during four consecutive hours during the most recent dioxin/furan stack test demonstrating compliance with the applicable limit for municipal waste combustor organics specified under 310 CMR 7.08(2)(f)(2), Table 2.

MODIFICATION or MODIFIED MUNICIPAL WASTE COMBUSTOR UNIT means a municipal waste combustor unit to which changes have been made if the cumulative cost of the changes, over the life of the unit, exceed 50 percent of the original cost of construction and installation of the unit (not including the cost of any land purchased in connection with such construction or installation) updated to current costs; or any physical change in the municipal waste combustor unit or change in the method of operation of the municipal waste combustor unit which increases the amount of any air pollutant emitted by the unit for which standards have been established under section 129 or section 111 of the Act. Whether there is an increase in the amount of any air pollutant emitted by the municipal waste combustor unit shall be determined at 100-percent physical load capability and downstream of all air pollution control devices, with no consideration given for load restrictions based on permits or other nonphysical operational restrictions.

MUNICIPAL SOLID WASTE or MUNICIPAL-TYPE SOLID WASTE means household, commercial/retail, and/or institutional waste. Household waste includes material discarded by single and multiple residential dwellings, hotels, motels, and other similar permanent or temporary housing establishments or facilities. Commercial/retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities. Institutional waste includes material discarded by schools, nonmedical waste discarded by hospitals, material discarded by nonmanufacturing activities at prisons and government facilities, and material discarded by other similar establishments or facilities. Household, commercial/retail, and institutional waste does not include used oil; sewage sludge; wood pallets; construction, renovation, and demolition waste (which includes but is not limited to railroad ties and telephone poles); clean wood; industrial process or manufacturing waste; medical waste; or

motor vehicles (including motor vehicle parts or vehicle fluff). Household, commercial/retail, and institutional waste includes (1) yard waste, and (2) refuse-derived fuel.

MUNICIPAL WASTE COMBUSTOR or MUNICIPAL WASTE COMBUSTOR UNIT means any setting or equipment that combusts solid, liquid, or gasified municipal solid waste including, but not limited to, field-erected incinerators (with or without heat recovery), modular incinerators (starved-air or excess-air), boilers (i.e., steam generating units), furnaces (whether suspension-fired, grate-fired, mass-fired, air curtain incinerators, or fluidized bed-fired), and pyrolysis/combustion units. Municipal waste combustors do not include pyrolysis/combustion units located at a plastics/rubber recycling unit as specified in this section. Municipal waste combustors do not include internal combustion engines, gas turbines, or other combustion devices that combust landfill gases collected by landfill gas collection systems. The boundaries of a municipal solid waste combustor are defined as follows. The municipal waste combustor unit includes, but is not limited to, the municipal solid waste fuel feed system, grate system, flue gas system, bottom ash system, and the combustor water system. The municipal waste combustor boundary starts at the municipal solid waste pit or hopper and extends through:

- (1) The combustor flue gas system, which ends immediately following the heat recovery equipment or, if there is no heat recovery equipment, immediately following the combustion chamber;
- (2) The combustor bottom ash system, which ends at the truck loading station or similar ash handling equipment that transfers the ash to final disposal, including all ash handling systems that are connected to the bottom ash handling system; and
- (3) The combustor water system, which starts at the feed water pump and ends at the piping exiting the steam drum or superheater. The municipal waste combustor unit does not include air pollution control equipment, the stack, water treatment equipment, or the turbine-generator set.

MUNICIPAL WASTE COMBUSTOR ACID GASES means all acid gases emitted in the exhaust gases from municipal waste combustor units including, but not limited to, sulfur dioxide and hydrogen chloride gases.

MUNICIPAL WASTE COMBUSTOR METALS means metals and metal compounds emitted in the exhaust gases from municipal waste combustor units.

MUNICIPAL WASTE COMBUSTOR ORGANICS means organic compounds emitted in the exhaust gases from municipal waste combustor units and includes polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

MUNICIPAL WASTE COMBUSTOR PLANT means one or more municipal waste combustor units at the same facility for which construction was commenced on or before September 20, 1994.

MUNICIPAL WASTE COMBUSTOR UNIT CAPACITY means the maximum charging rate of a municipal waste combustor unit expressed in tons per day of municipal solid waste combusted, calculated according to the procedures under 40 CFR 60.58b(j). 40 CFR 60.58b(j) includes procedures for determining municipal waste combustor unit capacity for continuous and batch feed municipal waste combustors.

MUNICIPAL WASTE COMBUSTOR UNIT LOAD means the steam load of the municipal waste combustor unit measured as specified in 40 CFR 60.58b(i)(6).

PARTICULATE MATTER means total particulate matter emitted from municipal waste combustor units measured as specified in 40 CFR, part 60, Appendix A, Reference Method 5.

POTENTIAL HYDROGEN CHLORIDE EMISSION CONCENTRATION means the hydrogen chloride emission concentration that would occur from combustion of municipal solid waste in the absence of any emission controls for municipal waste combustor acid gases.

POTENTIAL MERCURY EMISSION CONCENTRATION means the mercury emission concentration that would occur from combustion of municipal solid waste in the absence of any mercury emissions control.

POTENTIAL SULFUR DIOXIDE EMISSIONS means the sulfur dioxide emission concentration that would occur from combustion of municipal solid waste in the absence of any emission controls for municipal waste combustor acid gases.

RECONSTRUCTION means rebuilding a municipal waste combustor unit for which the reconstruction commenced after June 19, 1996, and the cumulative costs of the construction over the life of the unit exceed 50 percent of the original cost of construction and installation of the unit (not including any cost of land purchased in connection with such construction or installation) updated to current costs (current dollars).

REFRACTORY UNIT or REFRACTORY WALL FURNACE means a combustion unit having no energy recovery (e.g., via a waterwall) in the furnace (i.e., radiant heat transfer section) of the combustor.

REFUSE-DERIVED FUEL means a type of municipal solid waste produced by processing municipal solid waste through shredding and size classification. This includes all classes of refuse-derived fuel including, but not limited to low-density fluff refuse-derived fuel, densified refuse-derived fuel and pelletized refuse-derived fuel.

REFUSE-DERIVED FUEL STOKER means a steam generating unit that combusts refuse-derived fuel in a semisuspension firing mode using air-fed distributors.

SECOND CALENDAR HALF means the period starting July 1 and ending on December 31 in any year.

SHIFT SUPERVISOR means the person who is in direct charge and control of the operation of a municipal waste combustor and who is responsible for onsite supervision, technical direction, management, and overall performance of the facility during an assigned shift.

SMALL MUNICIPAL WASTE COMBUSTOR UNIT means a municipal waste combustor unit with a municipal waste combustor unit capacity greater than 39 tons per day but equal to or less than 250 tons per day of municipal solid waste.

STANDARD CONDITIONS means a temperature of 20°C and a pressure of 101.3 kilopascals.

TOTAL MASS DIOXIN/FURAN or TOTAL MASS means the total mass of tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans, as determined using 40 CFR, part 60, Appendix A, Reference Method 23.

TWENTY-FOUR HOUR DAILY AVERAGE OR 24-HOUR DAILY AVERAGE means either the arithmetic mean or geometric mean (as specified) of all hourly emission concentrations when the affected facility is operating and combusting municipal solid waste measured over a 24-hour period between 12:00 midnight and the following midnight.

UNTREATED LUMBER means wood or wood products that have been cut or shaped and include wet, air-dried, and kiln-dried wood products. Untreated lumber does not include wood products that have been painted, pigment-stained, or "pressure-treated." Pressure treating compounds include, but are not limited to, chromate copper arsenate, pentachlorophenol, and creosote.

WATERWALL FURNACE means a combustion unit having energy (heat) recovery in the furnace (i.e., radiant heat transfer section) of the combustor.

YARD WASTE means grass, grass clippings, bushes, shrubs that are generated by residential, commercial/retail, institutional, and/or undustrial sources as part of maintenance activities associated with yards or other private or public lands. Yard waste does not include construction, renovation, and demolition wastes. Yard waste does not include clean wood.

(d) Designated Pollutants and Operating Practices - 310 CMR 7.08(2) establishes the following requirements for municipal waste combustor operating practices, parameters and pollutants:

1. Operating Practices (Carbon Monoxide (CO), Flue Gas Temp., Load Level)
2. Metals (Mercury (Hg), Lead (Pb), Cadmium (Cd))
3. Particulate Matter (PM)
4. Opacity
5. Organics (Dioxins/Furans)
6. Acid Gases (Sulfur Dioxide (SO₂), Hydrogen Chloride (HCl))
7. Nitrogen Oxides (NO_x)
8. Fugitive Ash Emissions

(e) Applicability

1. 310 CMR 7.08(2) applies in its entirety to any person who owns, leases, operates or controls a large municipal waste combustor unit for which construction was commenced on or before September 20, 1994.

(f) Applicable Requirements.

1. Operating Practices

a. No person subject to 310 CMR 7.08(2) shall:

i. cause, suffer, allow or permit the discharge into the atmosphere from a municipal waste combustor unit any gases that contain carbon monoxide in excess of the emission limits specified in Table 1,

ii. cause, suffer, allow or permit such unit to operate at a load level greater than 110 percent of the maximum demonstrated municipal waste combustor unit load calculated in 4-hour block arithmetic averages, measured during the most recent dioxin/furan performance test, and

iii. cause, suffer, allow or permit such unit to operate at a temperature, measured at the particulate matter control device inlet, exceeding 17 °C (63°F) above the maximum demonstrated particulate matter control device temperature, calculated in 4-hour block arithmetic averages, measured during the most recent dioxin/furan performance test.

b. During the 9-month dioxin/furan performance test and the 2 weeks preceding the 9-month dioxin/furan performance test, municipal waste combustor unit load limit and particulate matter control device temperature limitations are not applicable.

c. The requirements of 310 CMR 7.08(2)(f)1.a.ii and iii may be waived if approval is granted by the Department for the purposes of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

2. Metals, Organics and Acid Gases - No person subject to 310 CMR 7.08(2) shall cause, suffer, allow or permit the discharge into the atmosphere from a municipal waste combustor unit of any gases that contain metals, opacity, organics, particulate matter or acid gases in excess of the emission limits specified in Table 2.

TABLE 1. MUNICIPAL WASTE COMBUSTOR OPERATING GUIDELINES

Municipal Waste Combustor Technology	Carbon Monoxide Emissions Level (parts per million by volume) ^a	Averaging Time ^b
Mass Burn Waterwall	100	4-hour
Mass Burn Refractory	100	4-hour
Refuse-Derived Fuel Stoker	200	24-hour

^a Measured at the combustor outlet in conjunction with a measurement of oxygen concentration, corrected to 7 percent oxygen, dry basis. Calculated as an arithmetic average.

^b Averaging times are 4-hour block or 24-hr daily arithmetic averages.

TABLE 2. EMISSION LIMIT FOR MUNICIPAL WASTE COMBUSTORS

Emission Limits For Large MWC Units ^a	
Particulate Matter (PM) Opacity	27 mg/dscm 10% (6-minute average)
<u>METALS:</u>	
Cadmium (Cd)	0.040 mg/dscm
Lead (Pb)	0.440 mg/dscm
Mercury (Hg)	0.028 mg/dscm or 85-percent reduction by weight, whichever is less stringent.
<u>ACID GASES:</u>	
Sulfur Dioxide (SO ₂)	29 ppmv or 75-percent reduction by weight or volume, whichever is less stringent. Compliance is based on a 24-hr geometric mean.
Hydrogen Chloride (HCl)	29 ppmv or 95-percent reduction by weight or volume, whichever is less stringent.
<u>ORGANICS:</u> (Total Mass)	
Dioxin/Furans with Electrostatic precipitator (ESP)	60 ng/dscm
Dioxin/Furans with Fabric Filter (FF)	30 ng/dscm

^a Corrected to 7 percent oxygen (dry basis).

3. Nitrogen Oxides - No person subject to 310 CMR 7.08(2) shall cause, suffer, allow or permit the discharge into the atmosphere from a municipal waste combustor unit of any gases that contain nitrogen oxides in excess of the emission limits specified in Table 3.

TABLE 3. NITROGEN OXIDE EMISSION LIMITS FOR LARGE MUNICIPAL WASTE COMBUSTOR UNITS

Municipal Waste Combustor Technology	NOx Emission Limit (Parts per million by volume) ^a	Averaging Time ^b
Mass Burn Waterwall	205	24-hour
Mass Burn Refractory	205	24-hour
Refuse-Derived Fuel Stoker	250	24-hour

^a Corrected to 7 percent oxygen, dry basis.

^b Averaging times are 24-hr daily arithmetic averages.

4. Nitrogen Oxides Emission Averaging Plan - A person subject to 310 CMR 7.08(2) may elect to implement a nitrogen oxides emissions averaging plan for the units that are located at that plant. Municipal waste combustor units subject to 40 CFR, Part 60, Subpart Ea or Eb cannot be included in the emissions averaging plan. The units included in the nitrogen oxides emissions averaging plan must be identified in the annual report specified in 310 CMR 7.08(2)(i), prior to implementing the averaging plan. The units at the plant included in the averaging plan may be redesignated each calendar year.

- a. To implement an emissions averaging plan, the average daily (24-hour) nitrogen oxides emission concentration level for gases discharged from units included in the emissions averaging plan shall not exceed the levels specified in Table 4.

TABLE 4. NITROGEN OXIDES LIMIT FOR UNITS INCLUDED IN AN EMISSIONS AVERAGING PLAN

Municipal Waste Combustor Technology	NOx Emission Limit (Parts per million by volume) ^a	Averaging Time ^b
Mass Burn Waterwall	185	24-hour
Mass Burn refractory	185	24-hour
Refuse-Derived Fuel Stoker	230	24-hour

^a Corrected to 7 percent oxygen, dry basis.

^b Averaging times are 24-hr daily arithmetic averages.

b. Under an emissions averaging plan, the average daily nitrogen oxides emission limits specified in Table 4 shall be calculated using equation (1). Units that are offline shall not be included in calculating the average daily nitrogen oxides emission level.

$$\text{NO}_{x24\text{-hr}} = \frac{\sum_{i=1}^h \frac{1}{3} (\text{NO}_{xi})(S_i)}{\sum_{i=1}^h \frac{1}{3} (S_i)} \quad (1)$$

where:

$\text{NO}_{x24\text{-hr}}$ = 24-hr daily average nitrogen oxides emission concentration level for the emissions averaging plan (ppmv, corrected to 7 percent oxygen).

NO_{xi} = 24-hr daily average nitrogen oxides emission concentration level for unit i (ppmv, corrected to 7 percent oxygen).

S_i = maximum demonstrated municipal waste combustor unit load for unit i (pounds per hour steam or feedwater flow as determined in the most recent dioxin/furan performance test).

h = total number of units included in the daily emissions average.

c. For any day in which any unit included in an emissions averaging plan is offline, the owner or operator of the municipal waste combustor plant must still demonstrate compliance with the applicable limits specified in Table 4 according to either 310 CMR 7.08(2)(f) 4. d. below, or 310 CMR 7.08(2)(f) 4. e., f. and g. below.

d. Compliance with the applicable limits specified in Table 4 shall be demonstrated using the averaging procedure specified in 310 CMR 7.08(2)(f) 4. b.

e. For each of the municipal waste combustor units included in an emissions averaging plan, the nitrogen oxides emissions shall be calculated on a daily average basis. The calculated average must not exceed the maximum daily nitrogen oxides emission level achieved by that municipal waste combustor unit on any of the days during which the emissions averaging plan was achieved with all municipal waste combustor units online during the most recent calendar

quarter. The requirements of this paragraph do not apply during the first quarter of operation, during the first year under an emissions averaging plan.

f. The average nitrogen oxides emissions (pounds per day) calculated according to 310 CMR 7.08(2)(f) 4. g. iv. below shall not exceed the average nitrogen oxides emissions (pounds per day) calculated according to 310 CMR 7.08(2)(f) 4. g.

g. The average nitrogen oxides emissions shall be calculated for all days during which the emissions averaging plan was implemented and achieved and during which all municipal waste combustor units were online. The average nitrogen oxides emissions (pounds per day) shall be calculated on a calendar year basis according to 310 CMR 7.08(2)(f) 4. g. i. through iii. of this section.

i. For each municipal waste combustor unit included in an emissions averaging plan, the daily amount of nitrogen oxides emitted (pounds per day) shall be calculated based on the hourly nitrogen oxides data required under 310 CMR 7.08(2)(f) 4. g., on the flue gas flow rate determined using Table 19-1 of EPA Reference Method 19 in 40 CFR, Part 60, Appendix A or an alternative Department approved method, and on the hourly average steam or feedwater flow rate.

ii. The daily total nitrogen oxides emissions shall be calculated as the sum of the daily nitrogen oxides emissions from each municipal waste combustor unit calculated under 310 CMR 7.08(2)(f) 4. g. i. of this section.

iii. The average nitrogen oxides emissions (pounds per day) on a calendar year basis shall be calculated as the sum of all daily total nitrogen oxides emissions calculated under 310 CMR 7.08(2)(f) 4. g. ii. of this section divided by the number of calendar days for which a daily total was calculated.

iv. The average nitrogen oxides emissions shall be calculated for all days during which one or more of the municipal waste combustor units under the emissions averaging plan was offline. The average nitrogen oxides emissions (pounds per day) shall be calculated on a calendar year basis according to 310 CMR 7.08(2)(f) 4. g. i. through iii. above.

5. Fugitive Ash - No person subject to 310 CMR 7.08(2) shall cause, suffer, allow or permit the discharge into the atmosphere of any visible emissions of combustion ash from an ash conveying system (including transfer points) in excess of 5 percent of the observation period (9 minutes per 3-hour period). This emission limit does not cover visible emissions discharged inside buildings or enclosures of ash conveying systems; however the emission limit does apply to visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems. This subsection does not apply during maintenance and repair of ash conveying systems.

6. Operator Training and Certification - Any person subject to 310 CMR 7.08(2) shall implement the following municipal waste combustor operator training and certification requirements.

a. Each chief municipal waste combustor unit operator and shift supervisor shall obtain and maintain an Operator Certificate issued by the American Society of Mechanical Engineers (ASME).

b. The person subject to 310 CMR 7.08(2) shall not allow the municipal waste combustor unit to be operated at any time unless one of the following persons is on duty: A chief municipal waste combustor unit operator who has obtained an Operator Certificate.(A Provisional Certificate is acceptable provided the operator is scheduled to obtain an Operator Certificate in accordance with section (f) below) or a shift supervisor who has obtained an Operator Certificate. (A Provisional Certificate is acceptable provided the supervisor is scheduled to obtain an Operator Certificate in accordance with section (f) below). If one of the persons listed above must leave the municipal waste combustor plant during his or her operating shift, a provisionally certified control room operator who is onsite at the municipal waste combustor plant may fulfill these requirements.

c. All chief municipal waste combustor unit operators, shift supervisors, and control room operators who have not obtained an Operator Certificate from ASME must complete the National Technical Information Service - "EPA Municipal Waste Combustor Operating Course". The identification codes are:

- i. EPA-453/B-93-020 - Operating Manual
- ii. EPA-453/B-93-021 - Instructors Guide

d. The person subject to 310 CMR 7.08(2) shall establish a training program to review the operating manual with each person who has responsibilities affecting the operation of an affected municipal waste combustor unit, including, but not limited to, chief municipal waste combustor unit operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane/load handlers. The operating manual shall address at a minimum the following:

- i. A summary of the all applicable requirements in this regulation;
- ii. Basic combustion theory applicable to a municipal waste combustor unit;
- iii. Procedures for receiving, handling, and feeding municipal solid waste;
- iv. Municipal waste combustor unit startup, shutdown, and malfunction procedures;
- v. Procedures for maintaining proper combustion air supply levels;
- vi. Procedures for operating the municipal waste combustor unit within the requirements established under this regulation;
- vii. Procedures for responding to periodic upset or off-specification conditions;
- viii. Procedures for minimizing particulate matter carryover;

- ix. Procedures for handling ash;
- x. Procedures for monitoring municipal waste combustor unit operations; and
- xi. Reporting and recordkeeping procedures.

e. The operating manual and records of training shall be available to the Department for inspection upon request.

f. Municipal waste combustor plants shall be in compliance with all training and certification requirements specified in 310 CMR 7.08(2)(f)6. by six months after the date of start up or [one year following the effective date of these regulations,] whichever is later.

(g) Compliance and Performance Testing. The latest revision of the compliance and performance testing methods and procedures specified for municipal waste combustors units in 40 CFR 60.58b (December 19, 1995 and as amended October 24, 1997, incorporated herein by reference) shall be used to determine compliance with the applicable requirements as set forth in 310 CMR 7.08(2)(f), except as provided under 310 CMR 7.08(2)(g)1.

1. Following the date that the initial performance test for dioxin/furans is completed, the person subject to 310 CMR 7.08(2) shall conduct performance tests for dioxin/furan emissions according to one of the schedules specified below:

a. Following the date of the initial performance test, performance testing for dioxin/furan emissions shall be conducted on all municipal waste combustor unit(s) on a 9-month basis, or

b. For municipal waste combustor unit(s) where all performance tests for all unit(s) over a 2-year period indicate that dioxin/furan emissions are less than or equal to 15 nanograms per dry standard cubic meter total mass, corrected to 7 percent oxygen, the person subject to 310 CMR 7.08(2) may elect to conduct 9-month performance tests for one unit every nine months. At a minimum, a performance test for dioxin/furan emissions shall be conducted every nine months following the previous performance test for one unit at the municipal waste combustor plant. Every nine months a different unit at the municipal waste combustor plant shall be tested, and the units at the plant shall be tested in sequence (e.g., unit 1, unit 2, unit 3, as applicable). The person subject to 310 CMR 7.08(2) may continue to conduct performance testing on only one unit per 9-month basis so long as the dioxin/furan emission limits remain less than or equal to 15 ng/dscm total mass corrected to 7 percent oxygen. If any 9-month performance test indicates dioxin/furan emissions greater than this limit, performance tests shall thereafter be conducted on all units at the plant every nine months until and unless all 9-month performance test for all units at the plant over a 2-year period indicate dioxin/furan emissions less than or equal to the levels specified in this paragraph.

c. The person subject to 310 CMR 7.08(2) that elects to follow the performance testing schedule specified in 310 CMR 7.08(2)(g) 1.b., shall follow the procedures specified in section 310 CMR 7.08(2)(i) 1. for reporting the selection of this schedule.

d. Municipal waste combustor units where activated carbon injection is used to comply with the dioxin/furan emission limits specified in section 310 CMR 7.08(2)(f)2. or the dioxin/furan emission limit specified in 310 CMR 7.08(2)(g)1.b., shall follow the procedures specified in paragraph (m) in 40 CFR 60.58b for measuring and calculating the carbon usage rate.

(h) Recordkeeping - Any person subject to 310 CMR 7.08(2) shall maintain records of the information specified in this section, as applicable, for each unit for a period of at least 5 years.

1. The calendar date of each record.

2. The emission concentrations and parameters measured using continuous emissions monitoring systems. The measurements specified below shall be recorded and shall be available for submittal to the Department or for onsite review by an inspector:

a. All 6-minute average opacity levels as specified under 40 CFR 60.58b(c), including the highest level measured.

b. All 1-hour average sulfur dioxide emission concentrations as specified under 40 CFR 60.58b(e).

c. All 1-hour average nitrogen oxides emission concentrations as specified under 40 CFR 60.58b(h).

d. All 1-hour average carbon monoxide emission concentrations, municipal waste combustor unit load measurements, and particulate matter control device inlet temperatures as specified under 40 CFR 60.58b(i).

e. All 24-hour daily geometric average sulfur dioxide emission concentrations and all 24-hour daily geometric average percent reductions in sulfur dioxide emissions as applicable, as specified under 40 CFR 60.58b(e) including the highest level recorded.

f. All 24-hour daily arithmetic average nitrogen oxides emission concentrations as specified under 40 CFR 60.58b(h), including the highest level recorded.

g. All 4-hour block or 24-hour daily arithmetic average carbon monoxide emission concentrations, as applicable, as specified under 40 CFR 60.58b(i), including the highest level recorded.

- h. All 4-hour block arithmetic average municipal waste combustor unit load levels and particulate matter control device inlet temperature as specified under 40 CFR 60.58b(i), including the highest level recorded.
3. Identification of the calendar dates when any of the average emissions concentrations or percent reductions, or operating parameters recorded under section 7.08(2)(h) 2., exceed the applicable limits, with reasons for such exceedances and a description of corrective actions taken.
4. For municipal waste combustor unit(s) that apply activated carbon for mercury or dioxin/furan control, the following records:
- a. The average carbon mass feed rate (in lbs/hr) estimated as required under 40 CFR 60.58b(m)(1)(i) during the initial mercury performance test and all subsequent annual performance tests, with supporting calculations.
 - b. The average carbon mass feed rate (in lbs/hr) estimated for each hour of operation as required under 40 CFR 60.58b(m)(1)(ii) during the initial dioxin/furan performance test and all subsequent 9-month performance tests, with supporting calculations.
 - c. The average carbon mass feed rate (in lbs/hr) estimated for each hour of operation as required under 40 CFR 60.58b(m)(3)(ii), with supporting calculations.
 - d. The total carbon usage for each calendar quarter estimated as specified under 40 CFR 60.58b(m)(3), with supporting calculations.
 - e. The carbon injection system operating parameter data for the parameter(s) that are the primary indicator(s) of carbon feed rate.
5. Identification of the calendar dates for which the minimum number of hours of any of the data specified below have not been obtained including reasons for not obtaining sufficient data and a description of corrective actions taken:
- a. Sulfur dioxide emissions data.
 - b. Nitrogen oxides emissions data.
 - c. Carbon monoxide emissions data.
 - d. Municipal waste combustor unit load data, including particulate matter control device inlet temperature data.
6. Identification of each occurrence that sulfur dioxide emissions data, nitrogen oxides emissions data, or operational data (i.e carbon monoxide emissions, unit load, and particulate matter control device temperature) have been excluded from the calculation of average emission concentrations or parameters, and the reasons for excluding the data.

7. The results of daily drift tests and quarterly accuracy determinations for sulfur dioxide, nitrogen oxides, and carbon monoxide continuous emission monitoring systems, as required under 40 CFR, Part 60, Appendix F, Procedure 1.

8. The results of the initial performance test and all annual performance tests (9-month performance test for dioxin/furan) conducted to determine compliance with the particulate matter, opacity, cadmium, lead, mercury, dioxin/furans, hydrogen chloride, and fugitive ash emission limits shall be recorded along with supporting calculations and submitted to the Department within 90 days after the test.

9. For the initial dioxin/furan performance test and all subsequent dioxin/furan performance tests recorded under 7.08(2)(h) 8., the maximum demonstrated municipal waste combustor load and maximum particulate matter control device temperature (for each particulate matter control device) shall be recorded along with supporting calculations.

10. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors, and control room operators who are certified by ASME (Operator Certification and Provisional Certification), including the dates of initial and renewal certifications and documentation of current certification. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustor operator training course if required.

11. Records showing the names of the persons who have completed a review of the operating manual as required by section 7.08(2)(f) 6. d. including the date of the initial review and subsequent annual reviews.

12. For municipal waste combustor units that apply activated carbon for mercury or dioxin/furan control:

a. Identification of the calendar dates when the average carbon mass feed rates recorded under 310 CMR 7.08(2)(h)4.c. were less than either of the hourly carbon feed rates estimated during performance tests for mercury or dioxin/furan emissions and recorded under paragraphs 310 CMR 7.08(2)(h) 4. a. or b. of this section, respectively, with reasons for such feed rates and a description of corrective actions taken.

b. Identification of the calendar dates when the carbon injection system operating parameter(s) that are the primary indicator(s) of carbon mass feed rate recorded under 310 7.08(2)(h) 4. e., are below the level(s) estimated during the performance tests as specified in 40 CFR 60.58b(m)(1)(i) and 60.58b(m)(1)(ii), with reasons for such occurrences and a description of corrective actions taken.

(i) Reporting Requirements - Any person subject to 310 CMR 7.08(2) shall submit an initial performance report as well as an annual report of the information specified in 310 CMR 7.08(2)(i) 1.,

as applicable. Any person subject to 310 CMR 7.08(2) shall submit a semiannual report that includes the information specified in 310 CMR 7.08(2)(i) 2. for any recorded pollutant or parameter that does not comply with the emission limits as set forth in 310 CMR 7.08(2). In meeting the reporting requirements of 310 CMR 7.08(2)(i)1. and 310 CMR 7.08(2)(i)2., any person subject to 310 CMR 7.08(2) shall report the information in a format determined by the Department that is designed to be understandable and informative to the public. The information shall be submitted in written format and electronic format.

1. Annual Reporting Requirements^a - The information specified in (a) through (g) below shall be reported:

- a. 310 CMR 7.08(2)(h) 2.a., e. through h. for the highest emission levels recorded.
- b. 310 CMR 7.08(2)(h) 4.a. and b.
- c. 310 CMR 7.08(2)(h) 5. - 6.
- d. 310 CMR 7.08(2)(h) 8. - 9.
- e. Summary of a. through d. for the previous year.
- f. The performance evaluation of the continuous emission monitoring system using the applicable performance specifications in appendix B of 40 CFR, part 60.
- g. A notification of intent to begin the reduced dioxin/furan compliance testing schedule specified in section 310 CMR 7.08(2)(g) 1. b. during the following calendar year.

2. Semi-Annual Reporting Requirements^b - The information specified in a. through e. below shall be reported:

- a. 310 CMR 7.08(2)(h) 2.a., e. through h. for each date recorded by 310 CMR 7.08(2)(h) 3.
- b. 310 CMR 7.08(2)(h) 3.
- c. 310 CMR 7.08(2)(h) 4. c.
- d. 310 CMR 7.08(2)(h) 8.^c
- e. 310 CMR 7.08(2)(h) 12.



^a Annual reports shall be submitted no later than February 15 of each year following the calendar year in which the data were collected.

^b Semiannual reports shall be submitted according to the schedule specified: (1) If data reported in accordance with section 310 CMR 7.08(2)(i)2 were collected during the first calendar half, then the report shall be submitted by August 1 following the first calendar half; (2) If data reported in section 310 CMR 7.08(2)(i)2 were collected during the second calendar half, then the report shall be submitted by February 15 following the second calendar half.

^c Include only the reports which document emission levels that were above the applicable requirements and the corrective actions taken.

(j) Schedules - Any person subject to 310 CMR 7.08(2) shall submit an Emission Control Plan (ECP) to the Department for review and approval by [90 days from the effective date of this regulation.] At a minimum, the ECP shall contain the control efficiency, specifications, and standard operating and maintenance procedures for any control equipment used to comply with this regulation. The ECP shall also contain a detailed evaluation of the feasibility of creating a front-end separation program which shall be submitted to the Department prior to the commencement of construction. The Department reserves the right to ask for additional information in the ECP regarding any control equipment used to comply with this regulation. A plan application under 310 CMR 7.02(2) is not required in order to implement the requirements for 310 CMR 7.08(2). The facility's operating permit will be modified upon approval of the emission control plan, in accordance with the procedures in 310 CMR 7.00: Appendix C(8). No additional application is necessary [N.B. also, an additional fee is not required] to modify the operating permit at the same time the emission control plan is approved.

Municipal waste combustor unit(s) subject to this regulation shall be in full compliance with the applicable requirements of 310 CMR 7.08(2) or cease operations by [1 year from the effective date of this regulation], except:

1. If a municipal waste combustor unit(s) within a municipal waste combustor plant cannot comply within one year, the person subject to 310 CMR 7.08(2) shall notify the Department in writing of reasons why it cannot comply, and shall include this notification in the ECP along with the following compliance schedule:

- a. Included in the ECP shall be dates for the following:

- i. Dates of all existing contract awards involving air pollution control systems or for process modifications, and dates for issuance of any additional orders for the purchase of air pollution control equipment. All contracts necessary to bring the municipal waste combustor unit(s) into compliance shall be executed no later than [one year from the effective date of this regulation.]

- ii. Date initiating on-site construction or installation of air pollution control equipment or process modification, as necessary. This date shall not exceed [eighteen months from the effective date of this regulation.]

- iii. Date the completion of on-site construction or installation of air pollution control equipment, or process modification will be achieved. This date shall not exceed [thirty months from the effective date of this regulation.]

- iv. Date to perform the initial performance test(s) of the air pollution control device(s). This date shall not exceed [thirty three months from the effective date of this regulation.]

- b. In no case shall compliance timelines exceed December 19, 2000.

2. If a municipal waste combustor unit(s) within a large municipal waste combustor plant is to permanently cease operations, it must do so within one year. If permanent ceasing of operations is not possible within one year, then to comply with 310 CMR 7.08(2) in its entirety, the owner or operator of the large municipal waste combustor plant shall provide:

a. justification to the Department six months prior to the compliance date why operation must extend beyond [the effective date of this regulation], and

b. the person subject to 310 CMR 7.08(2) shall enter into an Administrative Consent Order with the Department which contains enforceable milestones and commitments towards closure. In no case shall operations extend 2 years beyond [the effective date of this regulation.]

3. Large municipal waste combustor unit(s) which commenced construction, modification, or reconstruction after June 26, 1987 shall comply with the emission limits for mercury and dioxin/furans by one year following the approval by EPA of the state plan or one year following the promulgation of 40 CFR, Subpart FFF of Part 62, whichever is earlier.

(k) Material Separation Plan - Any person subject to 310 CMR 7.08(2) shall submit a materials separation plan to the Department for review by [six months from the effective date of this regulation]. A materials separation plan shall be as defined in 310 CMR 7.08(2)(c).

Additions are shown in Redline.
Deletions are shown in ~~Strikeout~~.

Amend 310 CMR 7.00 Appendix A

Amend the definition of actual emissions in 310 CMR 7.00 Appendix A(2) as follows:

Actual Emissions means:

- (a) As of a particular date, actual emissions shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The Department shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period. For the purposes of calculating a net emissions increase where actual emissions exceed allowable emissions, the actual emissions for the unit will be presumed to be equivalent to the source-specific allowable emissions of the unit.
- (b) For either an electric utility steam generating unit (other than a new unit or the replacement of an existing unit) or an emissions unit(s) complying with 310 CMR 7.08(2), 7.18, 7.19, ~~or 7.24~~ or 7.27, actual emissions of the unit following the physical or operational change shall equal the representative actual annual emissions of the unit, provided the source owner or operator maintains and submits to the Department, on an annual basis for a period of five years from the date the unit resumes regular operation, information demonstrating that the physical or operational change did not result in an emissions increase. A longer period, not to exceed ten years, may be required by the Department if it determines such period to be more representative of normal source post-change operations.
- (c) For any emissions unit (except as provided for in 310 CMR 7.00: *Appendix A Actual Emissions*(b)) which has not begun normal operations on the particular date, actual emissions shall equal the federal potential emissions of the unit on that date.

Amend the definition of Major Modification as follows:

Major Modification means any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant, for which the existing source is major, subject to regulation under the Act.

.....

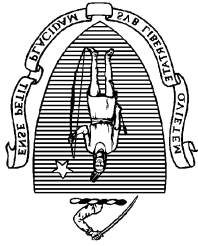
- (c) A physical change or change in the method of operation shall not include:
 - 8. The addition, replacement or use of a pollution control project at either an existing electric utility steam generating unit or an emissions unit(s) in order to comply with 310 CMR 7.08(2), 7.18, 7.19, ~~or 7.24~~ or 7.27, unless the Department determines that such addition, replacement, or use renders the unit less environmentally beneficial; or unless

- a. The Department has reason to believe that the pollution control project would result in a significant net increase in representative actual annual emissions of any criteria pollutant over levels used for that source in the most recent air quality impact analysis in the area conducted for the purpose of Title I of the Act, if any; and
- b. The Department determines that the increase will cause or contribute to a violation of any national ambient air quality standard or PSD increment, or visibility limitation; or

Amend the definition of "Pollution Control Project" as follows:

Pollution Control Project means any activity or project at either an existing electric utility steam generating unit or at an emissions unit(s) to comply with 310 CMR 7.18, 7.19 or 7.24 for purposes of reducing emissions from such unit. Such activities or projects are limited to:

- (a) The installation of conventional or innovative pollution control technology, including but not limited to advanced flue gas desulfurization, sorbent injection for sulfur dioxide and nitrogen oxides controls and electrostatic precipitators; or
- (b) an activity or project to accommodate switching to a fuel which is less polluting than the fuel used prior to the activity or project, including, but not limited to natural gas or coal re-burning, or the co-firing of natural gas and other fuels for the purpose of controlling emissions; or
- (c) a permanent clean coal technology demonstration project conducted under title II, sec. 101(d) of the Further Continuing Appropriations Act of 1985 (sec. 5903(d) of title 42 of the United States Code), or subsequent appropriations, up to a total amount of \$2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the EPA; or
- (d) a permanent clean coal technology demonstration project that constitutes a repowering project ; or
- (e) an activity or project to reduce emissions of VOC or NO_x to comply with 310 CMR 7.08(2), 7.18, 7.19, ~~or~~ 7.24 or 7.27.



ARGEO PAUL CELLUCCI
Governor

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AMENDMENTS TO
310 CMR 4.00
DEPARTMENT'S TIMELY ACTION
SCHEDULE AND FEE REGULATIONS

STATUTORY AUTHORITY

M.G.L. c. 21A, Section 18

MUNICIPAL WASTE COMBUSTOR FEE CATEGORY

DATE: April 1998

9/25/97
4.00

98-2 Fee Regulation Amendment

310 CMR

AIR QUALITY PERMIT APPLICATION FEE effective January 23, 1998

INDEX A

Program	Fee Type	Category/change
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Bureau of Waste Prevention

AQ	Permit Emission Control Plan for Municipal Waste Combusters	
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add new category AQ22 \$6000

6 existing sources subject to fee

Permit Approval to be added to facility Operating

without further fee

INDEX B

Page	section	category	change
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94.4	4.10(2)	AQ	AQ22 add category for Emission Control Plan for
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Municipal Waste Combusters \$6000

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Page 94.4 add the following text

(m)(4) BWPAQ22 - Permits for Emission Control Plan for Municipal Waste Combustors

1. Category: Municipal Waste Combustor emission control plan
2. Description: Emission Control Plan required pursuant to 310 CMR 7.08(2) et seq. for sources constructed prior to 1994
3. Schedule for timely action: for projects for which application is filed and fee received on or after January 23, 1998;
 - a. Within 30 days of receipt of an application and payment of the permit fee, the Department shall complete an administrative completeness review.
 - b. Within 100 days of making a determination of administrative completeness, the Department shall complete a technical review.
 - c. The permit applicant may remedy any identified deficiencies within 60 days of the Department's statement identifying deficiencies, if any.
 - d. Within 120 days of receipt of materials from the applicant in response to the Department's statement identifying deficiencies, the Department shall approve or deny the permit.
4. Permit Application Fee: \$6000